

EVALUATION BRIEF

Generation Challenge Programme

March 2014



Background and Context

The Generation Challenge Programme (GCP) is one of five Challenge Programmes (CP) introduced in the 2001 CGIAR reform to foster a programmatic approach to research, bring in new partners, and improve research quality in the CGIAR. The GCP focuses on 'promoting the use of genetic diversity and modern plant science for crop improvement in developing countries'. The challenge for agricultural research is to understand better the genetic control of useful traits such as drought tolerance in order for plant breeders, particularly those in NARS, to be able to develop better adapted crop varieties for dissemination to farmers living in developing countries. The environments for farming are often harsh and likely to become even more precarious in the face of climate change.

The GCP began in 2004 as a multi-partner programme with a pre-set 10-year life span. During its first five years (Phase I, 2004–2008) the GCP covered 18 CGIAR mandate crops, and concentrated on exploration and discovery of crop diversity through genomic research and molecular breeding. The changes in Phase II (2009–2014) followed largely from recommendations by the 2008 External Programme and Management Review (EPMR) and led to focus more narrowly on nine priority crops addressed through five research themes. Governance changes also led to greater independence.

The GCP Review was undertaken about a year before Programme closure scheduled for December 2014. The review focused primarily on the extent to which the GCP has provided support to genomics research and molecular plant breeding for developing country partners. The review also examined whether the GCP's thematic and partnership-oriented research approach was useful for delivering high quality scientific products, and what lessons could be drawn for the CGIAR Research Programmes. The review makes recommendations and suggestions for future activities related to genomics research and molecular breeding, as well as governance and management related to GCP's closure and Phase 2 of the Integrated Breeding Platform (IBP).

Evaluation Methodology

The GCP was reviewed according to criteria consistent with the Evaluation Policy and Standards of the CGIAR, covering relevance, quality of science, effectiveness, efficiency, impact and sustainability. The review was done in consultation with the European Union (EU) so as to also cater for the EU's evaluative information needs on the GCP.

An evaluation matrix was prepared that served to promote discussion among Review Team members and enable them to identify the key questions and issues to be addressed. The Review Team based its assessment of GCP's performance on a mix of methods: (a) review of extensive documentation and outputs produced by the GCP; (b) review of evaluation and strategic reports etc. on the GCP; (c) review of scientific articles (products of the GCP); (d) structured interviews of GCP staff and other key stakeholders; and surveys of partners, seeking the views of major GCP stakeholders through two specially designed surveys for research and for governance and management. Triangulation of information gathered underpinned the validation of evidence collected and its analysis, and supported the Review Team's conclusions and recommendations.

Key Findings

The Review Team found that the decade long programme of the GCP was, and continues to be, highly relevant. Through its research consortium approach, the GCP has demonstrated how molecular breeding can be used to address important problems in mainstream crop improvement programmes. GCP has generated an array of useful tools for breeders and geneticists seeking to understand the architecture of specific traits and efficient ways to transfer them to target lines and varieties. The Review Team also considered the quality of science of the Programme to be high, demonstrated by the exceptional number of scientific papers published (489 published scientific papers from the period 2005–2013), many of which (43%) in open access formats, thus ensuring accessibility to the information. Stakeholder survey results also supported this finding, indicating that the GCP had helped raise scientific standards and improve science quality (95% and 97% of respondents, respectively).

The GCP partnerships were found to have provided synergies and benefits with an enduring value. These have been characterized by inclusiveness, open data sharing, and strengthening the roles of NARS in project leadership, as well as equitable funding. In terms of efficiency, the Review Team judged that although it had improved from Phase I to Phase II, many of the competitive grants (common in Phase 1) delivered projects with a higher standard of research quality than commissioned research projects (more common in Phase II). Efficiency was also initially reduced by insufficient product specification that slowed down the development of the IBP and some reference collections. The Review concluded that the major contribution to GCP efficiency has been the emergence and fostering of a “GCP spirit” that has drawn together scientists from around the globe in a common endeavor.

Governance and Management of the GCP was found to be highly satisfactory, particularly after the mid-term change in the governance structure. Monitoring and evaluation, however, were found not to be as effective as they should have been, especially in the initial phases of the programme where baseline data and milestones could have been established.

The GCP impact and sustainability will largely depend on the success of IBP, the development and engagement of which has not yet been completed. If, and when, widely adopted, the IBP has a high likelihood of improving the efficiency and effectiveness of molecular breeding on a large scale, ultimately generating substantial benefits for farmers through production of well adapted crop varieties. The main risk to impact and sustainability of the GCP products and results is that they are not distributed, managed and used (by CRPs and national programmes) after the GCP closure.

Many of the lessons learned, both for science as well as governance and management, are relevant for CRPs. These include:

Partnerships and collaboration:

- The GCP’s approach for empowering NARS was successful and the Review Team strongly suggests it should be replicated in the CRPs.
- The Review Team noted the difficulties the GCP encountered in international transfer of germplasm among the GCP project teams and suggests that the CGIAR redouble its efforts to establish binding germplasm exchange agreements with countries where particular restrictions occur to facilitate open access to germplasm developed through CRPs.

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- The GCP General Research Meeting played an important role in communicating research, developing partnerships, and encouraging accountability among collaborators. The Review Team strongly encourages CRPs to organize an annual or biennial meeting of Principal Investigators and Programme staff, especially in cases where research is conducted over widely dispersed locations.

Research management

- Given the positive experiences from the GCP competitive grants, CRPs should also consider devoting some considerable portion of their research budget to support competitive grants.
- The GCP's flexibility to adjust a Programme approach as lessons were learned and adopt new methods as they emerged became a strength, which provides lessons for CRPs.

Capacity Building

- Learning by doing has been a particularly effective for of capacity building, considered an indispensable part of the GCP. Consideration should be given to how to link trained staff, particularly at the national level, to CRPs and how to absorb training materials into the research programmes. The Review Team also suggests that distance-learning platforms should be increased significantly.

Leveraging GCP legacy

- Almost all research, capacity building, seed and data storage and use of genetic and genomic resources and communications functions of the GCP, including the Communities of Practice, can be transferred to CRPs. This however, will take a concentrated effort by the GCP and CRP management in the short term to ensure successful transfer and maintenance.

Conclusion

In conclusion, the Review Team found that the GCP had performed well, had met the majority of its crop improvement goals and surpassed others, and will leave a formidable legacy of useful and accessible products and information. The Review Team also found that the GCP is approaching its impending closure logically, systematically, and with a view to maximizing its impact beyond closure by ensuring that key products are taken on in CRPs or supported through other arrangements. These include, as examples, the major characterization and tagging of genetic variability done by the GCP that CRPs should take up in their association studies, the field sites, and training in phenotyping that are of high value for molecular breeding. Importantly, the IBP should be suitably located and supported in order to continue to deliver benefits.

Looking to the future, the Review Team was cautiously optimistic that the GCP's activities will continue to be effectively implemented through the CRPs after 2014, and that the arrangements for housing IBP Phase 2 at a suitable location, both in the short-term as well as longer-term, will be agreed upon with relevant stakeholders without undue difficulty.

Main Recommendations

- During 2014 the GCP **select 20 or so products with highest potential impact and develop a market and promotion strategy** that strongly emphasizes their value and utility to targeted users
- Early in 2014 the GCP **appoint a senior staff member who understands the plant breeding process**, the CGIAR and the private sector, and also has software development and commercial skills **to guide and manage the launch of final versions of IBP**, oversee the development of hubs, and help finalize the workplan of IBP Phase 2.

- To maximize the impact of the GCP publications and products the **website collection** of published documents developed from GCP-sponsored molecular breeding research (2005–2014) is **maintained on a CGIAR-sponsored website** along with a means to query the collection.
- The GCP allocate funds from its reserves to **ensure that PhD and MS theses in process at the end 2014 are completed**, and request that the appropriate CRPs assume responsibility for oversight of those that continue beyond that date.
- The GCP **begin discussions immediately with the crop-specific CRPs to take ownership of the most valuable of these as genetic resources for improvement of their mandated crops**, and that these discussions be brought to a satisfactory close before the GCP sunsets in December 2014.
- On-going **costs associated with the maintenance of the GCP website and updating on-line of publication lists and the product catalogue be budgeted through 2018** as part of the GCP sunset financial strategy.
- **Funding of Phase 2 of the Integrated Breeding Platform.**
- In early 2014 the GCP Executive Board and Management **assess both long- and short-term options for governance and hosting of IBP Phase 2**, prepare business plans for these options, and in consultation with interested parties (the CC, IBP partners, other stakeholders, the Consortium Board, and various potential donors) pro-actively pursue a suitable long-term option (such as a new cross-cutting CRP), while also deciding on (possibly-short term) governance arrangements for IBP Phase 2 that would take effect immediately upon the GCP closure.
- The EB request its **IP Advisory Committee to regularly provide specific advice on IP-related risks and potential liabilities** as the GCP moves toward closure in December 2014, and that the EB systematically discuss these in 2014 and suitably advise GCP Management.
- The GCP give **high priority to ‘Risk management’** on the agenda of the EB and MT as they respectively oversee and manage Programme closure and the transition of the GCP activities to the CRPs and IBP Phase 2 governance bodies.
- **Formal impact assessment of the GCP genetic enhancement activities be undertaken in 2016–2017** using some of the 14 user case studies that form part of the IBP Phase 2.

Management Response

The GCP thanked the IEA for its review and noted the overall very favourable commentary. They also expressed gratitude to the European Commission for allowing this independent review to form a part of its monitoring and evaluation process and obviate the need for an additional review.

The GCP agreed with all 11 recommendations, and noted that measures have been or will be put in place to ensure that the spirit and intent of the recommendations are upheld. Recent developments related to the recommendations include the selection of “high potential impact” products and development of a promotion and marketing strategy for those products, as well as preliminary discussions with all six crop commodity CRPs for documenting research outputs and products. In addition, the GCP noted that hosting of Phase 2 of the Integrated Breeding Platform is being explored with the Consortium Office, and recruitment of a senior staff member by the GCP is planned for mid-2014.